CHAPTER 4D. TRAFFIC CONTROL SIGNAL FEATURES

Section 4D.02 Responsibility for Operation and Maintenance

Add the following to the Guidance subsection:

I. Keep a signal record in each signal cabinet along with a phasing schematic and wiring diagrams. The signal record or log should contain the following:

1. Current signal timing, unless the signals are connected to a central computer that can upload and download timings

2. Date and time of changes or maintenance operations

3. Initials of person changing timing or performing maintenance

4. Type of maintenance operation and characteristics of equipment failure or faulty operation evident before repair

Section 4D.06 Application of Steady Signal Indications for Left Turns

Delete the first paragraph of the first Standard subsection C. Protected/Permissive Mode, 4. and insert the following:

A supplementary sign shall not be required. If used, it shall be a LEFT TURN YIELD ON GREEN (symbolic green ball) sign (R10-12) or R10-100 LEFT TURN ONLY ON GREEN BALL (symbol).

Section 4D.15 Size, Number, and Location of Signal Faces by Approach

In the first Standard subsection delete Items B. and C. and insert the following:

C. If the nearest signal face is between 120 feet and 180 feet beyond the stop line, unless a supplemental near-side signal face is provided

D. For signal faces located more than 180 feet from the stop line

In the second Standard subsection delete Item D. 1. (b) and insert the following:

(b). Not more than 180 feet beyond the stop line unless a supplemental near side signal face is provided

In Figure 4D-2 Horizontal Location of Signal Faces, change 45 m (150 ft) reference to 180 feet.

Insert the following at the end of the first Support subsection:

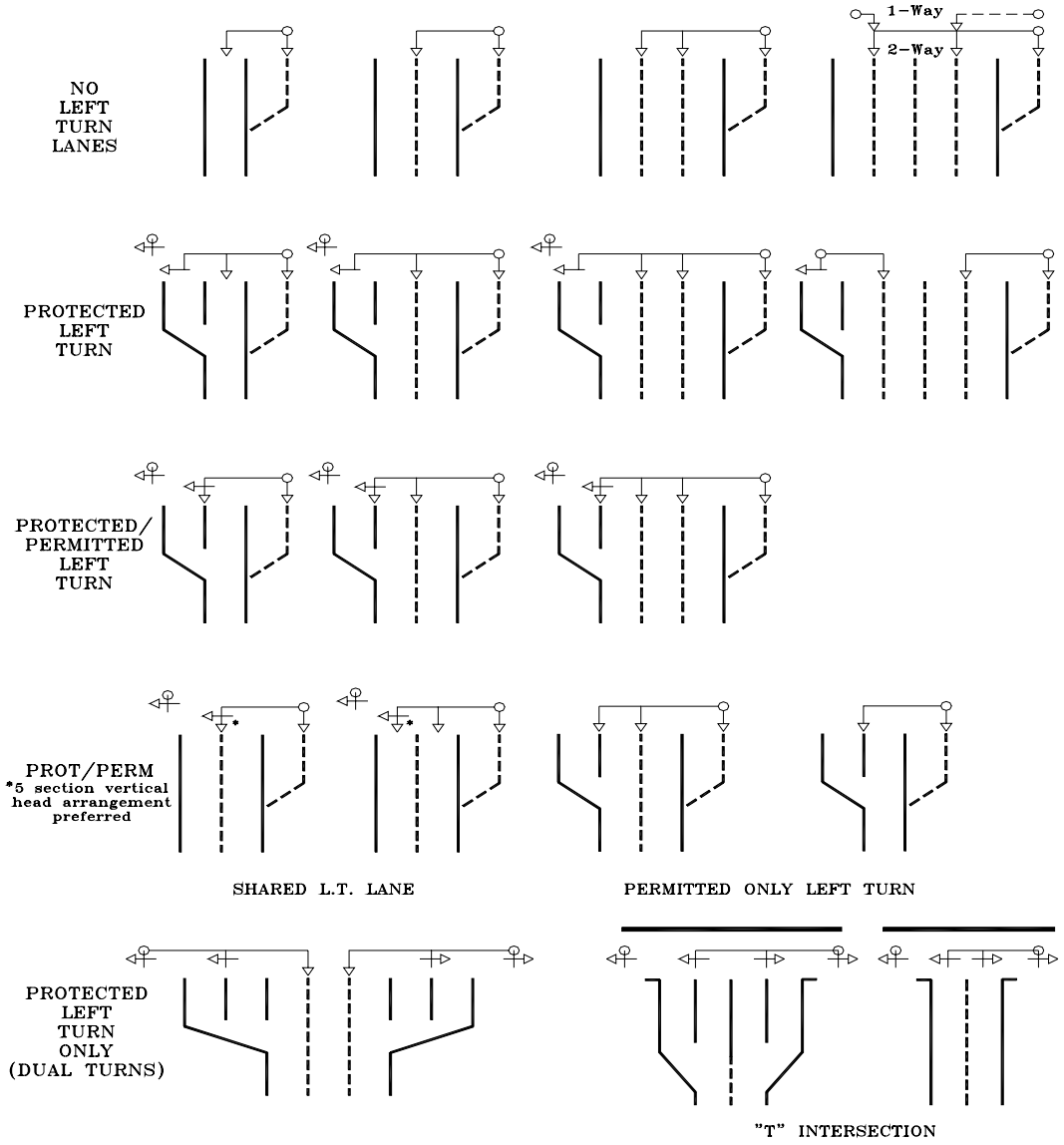

Table 4D-100 shows typical signal head locations at various intersections.

NOTE: Near-side heads (not shown) may be needed on wide intersections.

Figure 4D-100
Typical Signal Head Locations

Add the following to the end of the Standard subsection:

Vehicular signals shall consist of the following minimum configurations for each approaching direction:

A. The primary indicator for through traffic at signal-controlled intersections shall be a side-mounted or post-mounted signal face on the far side of the cross street and to the right of traffic approaching the signal (far-right position). In urban centers and other locations where the far-right position signal would be obscured or outside of the cone of vision as shown in Figure 4D-2 of the MUTCD, an overhead signal face over through lanes may be substituted as the primary indicator.

B. The primary through traffic indicator shall be supplemented with no less than the number of through indicators required by Table 4D-100 on the following page. On a one-way street that is three or more lanes wide, an additional post-mounted signal face shall be installed on the far left side of the intersection.

The primary indicator for turning traffic at intersections with separate turn phasing shall be a signal face with 12-inch diameter lenses with arrow(s) on the far side of the cross street and placed to be in conformance with the following:

A. The primary indication for right-turn traffic with exclusive right-turn phasing which overlaps the through-traffic phase shall be a 12-inch diameter green arrow mounted on the far side below the primary indicator.

B. The primary indication for a protected left-turn phase shall be as close as possible to:

1. The prolongation of the center of the lane on a single left-turn lane approach

2. The prolongation of the separating lane line on a dual left-turn approach

C. The primary indication for a protected/permitted left-turn phase shall be as close as possible to:

1. The prolongation of the lane line separating the turn lane from the adjacent through lane, where an exclusive turn lane is provided

2. The prolongation of the center of the left-most lane or the prolongation of the lane line separating the left-most two lanes where an exclusive turn lane is not provided

Guidance:

A supplemental far-side left-turn indicator should be provided where there is protected or protected-permitted left-turn phasing. The indicator shall consist of a three section head (all arrows) with protected phasing and a five section vertically arranged head with protected-permitted phasing.

Option:

Protected-permitted signal faces in these locations may be supplemented with the R10-12 sign adjacent to each signal face.

Table 4D-100
Number of Through Overhead Signals

NUMBER OF THROUGH APPROACH LANES	TYPE OF LEFT TURNING MOVEMENT			
	NONE OR COMPLETELY PROTECTED		PROTECTED/PERMITTED	
	HEADS [A]	SPACING [B]	HEADS	SPACING [B]
1-LANE	1	--	0 [C]	--
2-LANES	1	--	1	12
3-LANES	2	12	2	12
4&5-LANES	2	24	--	--

A. Number of heads centered over the through approach
B. Approximate spacing between the overhead signals (based on 12' lane width)
C. Overhead indication is provided by the protected/permitted signal head

Section 4D.17 Visibility, Shielding, and Positioning of Signal Faces

Delete the first sentence of the fourth paragraph under the Standard subsection and insert the following:

The bottom of the signal housing and any related attachments to a vehicular signal face located over a roadway shall be at least 17.5 feet above the roadway immediately below the signal.

Delete the seventh and eighth paragraphs under the Standard subsection and insert the following:

A. Shall be at least 10 feet but not more than 19 feet above the sidewalk or, if there is no sidewalk, above the pavement grade at the center of the roadway

B. Shall be at least 7 feet but not more than 19 feet above the median island grade of a center medial island if located on the near side of the intersection

Delete the tenth and eleventh paragraphs under the Standard subsection and insert the following:

A. Shall be at least 10 feet but not more than 22 feet above the sidewalk or, if there is no sidewalk, above the pavement grade at the center of the roadway

B. Shall be at least 7 feet but not more than 22 feet above the median island grade of a center median island if located on the near side of the intersection

Section 4D.18 Design, Illumination, and Color of Signal Sections

Insert the following to the end of the second Standard subsection:

All remaining ungalvanized surfaces shall be painted dark olive green.

Delete the sentence under the second Guidance subsection.

CHAPTER 4E. PEDESTRIAN CONTROL FEATURES

Section 4E.02 Meaning of Pedestrian Signal Indications

Add the following at the end of the Standard subsection:

At all locations with a pedestrian signal indication, THE MEANING OF PEDESTRIAN SIGNALS (R10-101) sign or sticker should be installed on each pole, between and immediately above the push buttons. These signs or stickers need not be reflectorized.

Section 4E.07 Pedestrian Detectors

Delete the first sentence of the third Guidance subsection and insert the following:

The use of additional pedestrian detectors and pedestrian signal indications on islands or medians where a pedestrian might become stranded should be considered.

Section 4E.09 Pedestrian Intervals and Signal Phases

Delete the first paragraph of the last Option subsection and insert the following:

The pedestrian clearance time may be entirely contained within the green interval for the adjacent green movement, or may be entirely contained within the vehicular green and yellow change interval.

CHAPTER 4K. FLASHING BEACONS

Section 4K.02 Intersection Control Beacon

Add the following before the first Standard subsection:

Option:

Intersection beacons may be considered at an intersection if:

A. There have been a total of four or more left-turn and/or right-angle accidents in a 12-consecutive-month period, or

B. There have been a total of six or more left-turn and/or right-angle accidents in a 24-consecutive-month period.

Guidance:

When intersection beacons are used, if the ratio of entering minor street traffic volume to entering major street traffic volume is 0.50 or less, the beacon should display red toward the minor volume and yellow toward the major volume. If the ratio of minor volume to major volume exceeds 0.50, red should be shown and STOP (R1-1) signs installed on all approaches.

Section 4K.03 Warning Beacons

Delete the second paragraph in the Standard subsection and insert the following:

A warning beacon shall be used only to supplement an appropriate warning or regulatory sign or marker. The beacon shall not be included within the border of the sign.

Delete the last paragraph of the Standard subsection and insert the following:

If a warning beacon is suspended over the roadway, the clearance above the pavement shall comply with the requirements of Section 4D.17.

CHAPTER 4Z. ACTIVE ADVANCE WARNING FLASHERS

This is a new chapter. There is no corresponding chapter in the MUTCD.

Section 4Z.01 Application of Active Advance Warning Flashers

Support:

Active Advance Warning Flashers (AAWFs) are a special type of highway traffic signal installed in advance of conventional traffic signals to provide advance notice of the onset of the yellow indication.

Guidance:

AAWFs should only be installed when all of the following conditions are met:

A. High-speed (55 mph or higher) approaches

B. At the first signalized intersection after 10 or more miles of uninterrupted highway

C. Where sight distance to the conventional traffic signal indications meets or exceeds standards

Section 4Z.02 Design of Active Advance Warning Flashers

Guidance:

AAWFs should be installed 500 feet in advance of the stop bar.

The AAWF sign and flashers should be designed to:

A. Appear distinctively different than standard flashing signal ahead signs/beacons to alert drivers to its different meaning (impending yellow indication)

B. Communicate at a glance that the warning refers to a signal, not construction activity, pedestrian crossing, etc.

C. Provide a failsafe message. That is, when the power goes out, it should not imply to drivers that they may proceed through the intersection, as a nonflashing “Prepare to Stop When Flashing” sign does.

D. Be easily visible from all lanes on the approach

Figure 4Z-100 shows the recommended AAWF configuration.

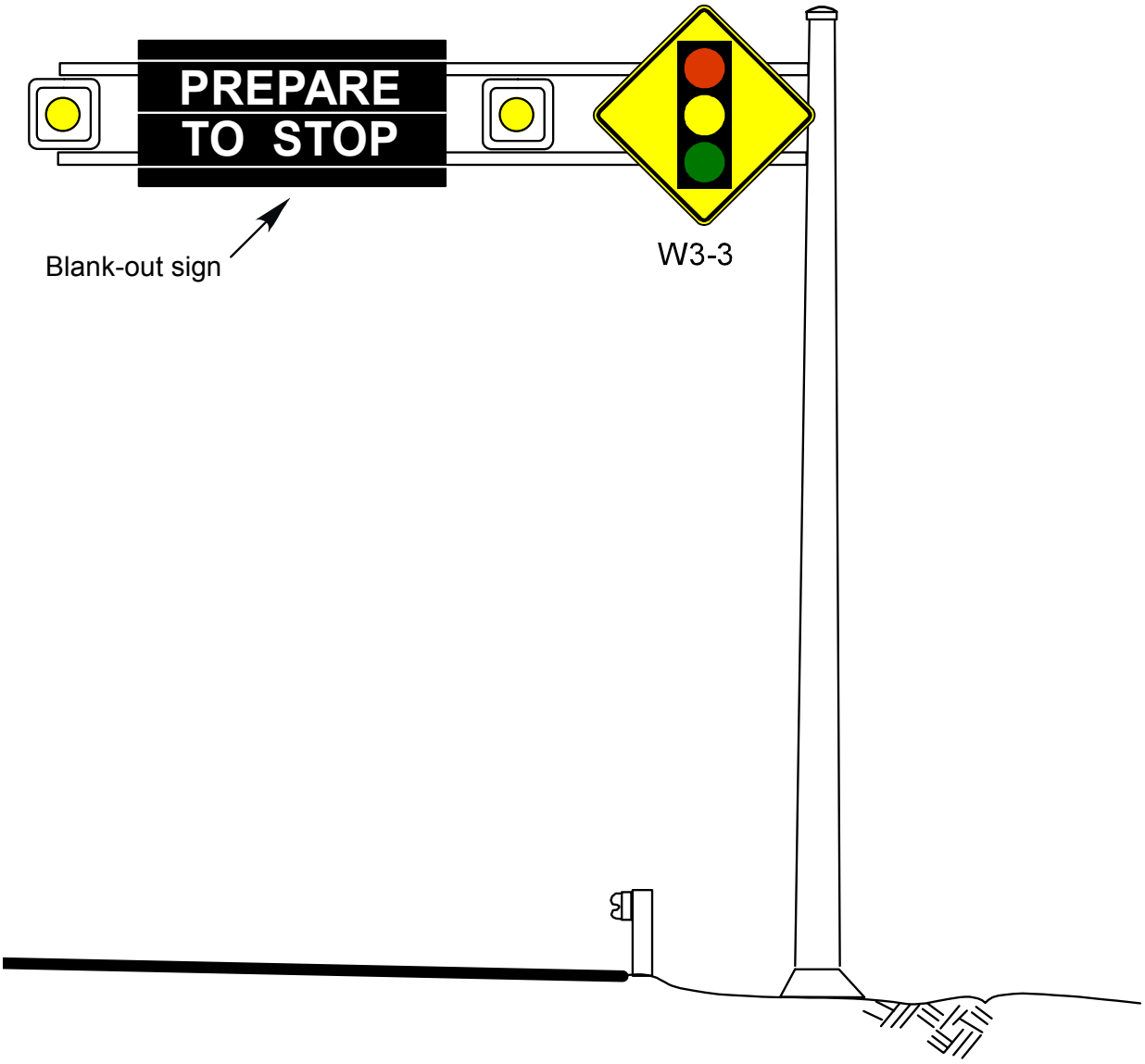

Figure 4Z-100
Active Advance Warning Flasher